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ABSTRACT

This study investigated how the online instruction in a graduate instructional technology course affects learners psychological factors, such as locus of control and achievement motivation. It was expected that learners would be more internal at the completion of the course than at the beginning, and that learners would have higher achievement motivation scores at the completion than at the beginning of an online course. Twelve graduate students participated in this project, which used a single group pretest-posttest design. The first hypothesis was supported in that participants internal locus of control scale scores increased by the completion of the online course, although scale scores had indicated externality at the beginning on both scales used. The second hypothesis was not supported, since no significant differences were found in any of the three achievement motivation subscales, work mastery, and competitiveness, over the pretests, midterm tests, and posttests. (Contains 10 references.) (SLD)

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Effects of Online Instruction on Locus of Control and Achievement Motivation

Objectives of the Study

Online education differs from traditional education in that it includes a variety of formats: asynchronous web-based instruction, bulletin board discussion, e-mail communication, as well as synchronous online chat and net conferencing (Kearsley, 2000). Indeed, the recent rapid development of educational technology has positively influenced many aspects of education at all levels directly or indirectly (CEO Forum, 2000; Muffoletto, 1990; Troxel & Grady, 1989). Recent research involving online education has emphasized the learners' achievement and course evaluation (Kearsley, 2000; Russell, 1999). However, the effects of online instruction on learners' psychological factors, such as achievement motivation and locus of control, has not received research attention. Given the rapid development of instructional technology as well as support for the instructional efficacy of technological interventions, it is important to examine the effects of intervention on individual difference variables.

There are two major objectives in this study. The first one is to investigate how the online instruction in a graduate instructional technology course affects the learners' psychological factors, such as locus of control (LOC) and achievement motivation. Both locus of control and achievement motivation had been supported as critical individual difference variables in traditional instructional research. Specifically, the major research questions are:

1. Will the learner's locus of control be influenced by online instruction? If yes, how?
2. Will the learner's achievement motivation be influenced by online instruction? If yes, how?

Theoretical Framework

The instructional effects of media have provided a platform for diverse opinions. On one hand, Clark (1983, 1994) maintained that media do not influence learning in any condition. In contrast, Kozma (1994) argued that technologies such as computers and video influence learning by interacting with an individual's cognitive and social processes in constructing knowledge. More recent literature has supported Kozma's above argument. Thus, many researchers suggest assessing learners' psychological factors before formal distance instruction (Ross, 1998) in order to individualize instruction.

More importantly, recent studies have shown that technology media (e. g., video, the Internet, computers) can influence the learner's psychological factors such as locus of control (Swan, Mitrani, Guerrero, Cheung, & Schoener, 1990). Here, locus of control, a generalized belief regarding one's personal efficacy, is characterized as internal, maintaining a belief that performance outcome is contingent on one's own behaviors, and, external, being related to a belief that an event is beyond one's own control (Rotter, 1966). Recent research has indicated that computer-based instruction can facilitate perceived locus of control towards internality, especially with disadvantaged learners (Swan et al., 1990). In addition, research has consistently indicated that internals tend to significantly outperform externals in performance in technology-mediated environments (Santiago & Okey, 1992; Wang & Newlin, 2000). Therefore, based on the above literature, one research hypothesis can be stated as follows:

Hypothesis 1: Learners will be more internal at the completion than at the beginning of an online course.

In addition, recent distance education research indicates that most distance learners are nontraditional learners, and are more motivated than traditional learners. They have to compete

with lots of other factors on a daily basis, such as family and work, and they tend to assume more responsibilities in order to learn effectively. Recently, Lesh, Guffey, & Ramp (2000) found that online instruction can result in a change in learners' achievement motivation in a college health professional online course from the beginning to the end. Therefore, based on the above literature, a second research hypothesis can be stated as follows:

Hypothesis 2: Learners will have higher achievement motivation scores at the completion than at the beginning of an online course.

Methods

Participants

The lead investigator in this study was the instructor of an online instructional technology (IT) course (Theories in Distance Education) at a medium sized, Midwestern state university in Spring, 2001. Initially, this course was scheduled as an off-campus course for a 17-week semester, but, in order to pioneer online course delivery and to begin preliminary testing of the instructional efficacy of the intervention, the lead investigator delivered the course online.

Twelve graduate students in that online course were solicited for participation in this project in the first week of Spring, 2001. Students were offered incentives for participation in this study such as receiving extra course credit for participation. After all students agreed to participate, they were asked to complete consent forms and demographic surveys. For most participants, this was their first time to take an online course. No students dropped out throughout the semester in this study. All participants were white females; eleven of them were in the IT graduate program and the other one majors in education.

Definition of the Independent Variable

The major independent variable was online instruction, which was delivered completely online in a WebCT environment. A hybrid of online instructional techniques, which have been considered as very effective involving the use of technology (Clark, 1999), were employed in the course. Most of the major features of WebCT were used throughout the semester and each student was required to complete the following: (1) An online objective chapter quiz was administered every week. The maximum time for each quiz was 60 minutes. Each quiz was only allowed for only one attempt and was graded automatically. So, students got immediate feedback about the quizzes. (2) The bulletin board was used to discuss and answer each chapter's weekly essay questions. (3) The biweekly online synchronous chatroom was used for course assignments, discussion, and communication. (4) Students were required to design a personal web page presenting himself/herself and his/her course assignments. (5) Students were required to complete a cooperative two-person group project through various interactive communication methods, such as private e-mail communication, bulletin board discussion, online chatrooms, and phone calls. In addition, in order to reduce the learner's learning anxiety and to maximize learning efficiency, three face-to-face meetings were conducted in the beginning, middle, and final week of spring 2001. This schedule was consistent with other previous online course studies (Wells, 2000).

Experimental Design

This study involved a single group pretest-posttest design. Specifically, the participants in this study were pretested with two psychological instruments (locus of control and achievement motivation) in the first week meeting. Then the participants were exposed to the online WebCT environment from the second week through the final week. Finally, the participants were

posttested with the above same two psychological instruments in the middle week (midterm test) and final week (posttest).

Instruments and Data Sources

Locus of Control. Two LOC instruments were used. One is Trice's academic LOC scale (1985), including 28 "True" or "False" items. For instance, "College grades most often reflect the effort you put into classes". This scale was selected because it is highly related to academic environments. The maximum score for each item is 1 point. So the maximum total for this scale is 28 points.

The other one is Rotter's LOC scale (1966), including 29 forced-choice items ("a" or "b"). For instance, item 2 is like this: "a. Many of the unhappy things in people's lives are partly due to bad luck. b. People's misfortunes result from the mistakes they make". This scale was selected because it is related to any general environment and has been widely used since 1966. The maximum score for each item is 1 point. So the maximum total for this scale is 29 points. Some items are reversely scored in this scale. For both of the above scales, higher scores represent greater externality, and vise versa. Both scales had high validity and reliability.

Achievement Motivation. Spence and Helmreich (1983)'s multidimensional achievement motivation measure was selected to assess participants' achievement motivation because it was designed to measure three major domains: work, mastery, and competition. This scale includes 19 items accompanied by a 5-point rating scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). For instance, "I prefer to work in situations that require a high level of skill". This scale had high validity and reliability.

All of the above instruments were administered in the paper-and-pencil format in three face-to-face meetings in the beginning, middle, and final week of Spring, 2001. The pretest

measured the initial state of the learner's characteristics before online instruction. The midterm test and posttest were administered in the middle and final week respectively, measuring the developmental state of those characteristics affected by online instruction over the semester.

Results and Discussion

All data was coded and analyzed in SPSS 10 to test for significant differences between the paired mean differences of the pretest, midterm test, and posttest in terms of locus of control and achievement motivation scores using a paired samples t-test. Generally, the first hypothesis was supported while the second was refuted. These research hypotheses are analyzed as follows.

First, hypothesis 1 was supported. That is, participants' internal locus of control scale scores increased by the completion of the online course, although scale scores had indicated externality at the beginning on both scales. Specifically, in terms of academic locus of control scores, there was a significant difference between pretest and midterm test ($t = 6.55$, $\alpha < .001$), between midterm test and posttest ($t = 3.22$, $\alpha < .01$), and between the pretest and posttest ($t = 9.22$, $\alpha < .001$) with $df = 11$; In addition, in terms of Rotter's locus of control scores, there was a significant difference between pretest and midterm test ($t = 2.71$, $\alpha < .05$), between midterm test and posttest ($t = 2.42$, $\alpha < .05$), and between the pretest and posttest ($t = 2.99$, $\alpha < .05$) with $df = 11$. These results are consistent with the results in previous studies (Swan et al., 1990), supporting that online instruction is an effective method for changing learner's locus of control: from externality to internality.

Second, hypothesis 2 was not supported. No significant differences were found in any of the three achievement motivation subscales—work, mastery, and competitiveness—between pretest and midterm test, between midterm test and posttest, and between the pretest and posttest ($\alpha > .05$). This is not consistent with the results in previous studies such as (Lesh et al., 2000).

This inconsistency may be related to several factors. First, the Lesh et al study involved health professional college students while this study involved in IT graduate students. College students have different characteristics than graduate students. Second, this study did not use the same achievement motivation instrument as Lesh et al used, and, finally, achievement motivation as related to adult learner's work, mastery, and competitiveness may be consistent across different learning environments. That is, adult students may have similar achievement motivations in both traditional and online instruction.

Educational or Scientific Importance of the Study

The research findings regarding changes in locus of control in this exploratory study are very promising. The findings extend research on online instruction and learning to include consideration of personal belief factors, locus of control. That is, online instruction can improve students' self-responsibilities and beliefs about their own learning. In other words, online instruction can be an effective method to train students to change from external locus of control to internal locus of control.

However, there are limitations in this study. For instance, this study was a single group pretest and posttest experimental design and involved a relatively small sample of graduates majoring in instructional technology. Care should be taken in order to generalize the results in this study to any other populations and environments. Further investigation of this topic is required in large samples across other majors in the future.

References

CEO Forum (2000). The CEO forum: School technology and readiness report [Online]. DC: CEO Forum. Available: http://www.ceoforum.org/.

Clark, R.E. (1983). Reconsidering research on learning from media. Review of Educational Research, 53, 445-459.

Clark, R. E. (1994). Media will never influence learning. Educational Technology, Research and Development, 42(2), 21-29.

Clark, R. E. (1999). Bloodletting, media, and learning. In T. L. Russell, The No Significant Difference Phenomenon (pp. vii – xi). Office of Instructional Telecommunications: North Carolina State University.

Kearsley, G. (2000). Online education: learning and teaching in no cyberspace. Belmont, CA: Wadsworth.

Kozma, R. B. (1994). Will media influence learning? Reframing the debate. Educational Technology Research and Development, 42, 7-19.

Lesh, S. G., Guffey, J. & S., & Ramp, L. C. (2000). Changes in student attitudes regarding a web-based health professional course. (ERIC ED441 386).

Muffoletto, R. (1990). Media education as critical pedagogy. Journal of Thought, 25(1/2), 99-112.

Ross, J. L. (1998). On-Line But Off Course: A Wish List for Distance Educators. International Electronic Journal For Leadership in Learning [Online], 2(3). Available: http://www.acs.ucalgary.ca/~iejll/.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80(1), 1-26.

Russell, T. L. (1999). The No Significant Difference Phenomenon. Office of Instructional Telecommunications: North Carolina State University.

Santiago, R and Okey, J. (1992). The Effects of Advisement and Locus of Control on Achievement in Learner-Controlled Instruction. Journal Computer-Based instruction, 19(2), 47-53.

Spence, J. T., & Helmreich, R. L. (1983). Achievement-related motives and behaviors. In J. T. Helmreich (Ed.), Achievement and achievement motives (pp. 7-74). San Francisco, CA: W. H. Freeman.

Swan, K., Mitrani, M., Guerrero, F., Cheung, M., & Schoener, J. (1990). Perceived locus of control and computer-based instruction. Albany, NY (ERIC ED 327 140).

Trice, A. D. (1985). An academic locus of control scale for college students. Perceptual and Motor Skills, 61, 1043-1046.

Troxel, D.K. & Grady, W.F. (1989). The state of educational technology in the United States of America. International Journal of Instructional Media, 16(1), 1-13.

Wang, A. Y., & Newlin, M. H. (2000). Characteristics of students who enroll and succeed in psychology web-based classes. Journal of Educational Psychology, 92(1) 137-143.

Wells, J. (2000). Effects of an On-Line Computer-Mediated Communication Course, Prior Computer Experience and Internet Knowledge, and Learning Styles on Students' Internet Attitudes. Journal of Industrial Teacher Education, 37(3). Available: http://scholar.lib.vt.edu/ejournals/JITE/v37n3/wells.html.